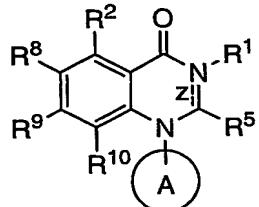


WHAT IS CLAIMED IS:

1. A compound of the structure:



- 5 or a pharmaceutically acceptable salt thereof, wherein
z is a single or double bond;
A is
a) an aryl ring, wherein any stable aryl ring atom is independently unsubstituted or
substituted with
- 10 1) halogen,
2) NO₂,
3) CN,
4) CR⁴⁶=C(R⁴⁷R⁴⁸)₂,
5) C≡C R⁴⁶,
15 6) (CRⁱR^j)_rOR⁴⁶,
7) (CRⁱR^j)_rN(R⁴⁶R⁴⁷),
8) (CRⁱR^j)_rC(O)R⁴⁶,
9) (CRⁱR^j)_rC(O)OR⁴⁶,
10) (CRⁱR^j)_rR⁴⁶,
20 11) (CRⁱR^j)_rS(O)0-2R⁶¹,
12) (CRⁱR^j)_rS(O)0-2N(R⁴⁶R⁴⁷),
13) OS(O)0-2R⁶¹,
14) N(R⁴⁶)C(O)R⁴⁷,
15) N(R⁴⁶)S(O)0-2R⁶¹,
25 16) (CRⁱR^j)_rN(R⁴⁶)R⁶¹,
17) (CRⁱR^j)_rN(R⁴⁶)R⁶¹OR⁴⁷,
18) (CRⁱR^j)_rN(R⁴⁶)(CR^kR^l)_sC(O)N(R⁴⁷R⁴⁸),
19) N(R⁴⁶)(CRⁱR^j)_rR⁶¹,
20) N(R⁴⁶)(CRⁱR^j)_rN(R⁴⁷R⁴⁸),
30 21) (CRⁱR^j)_rC(O)N(R⁴⁷R⁴⁸), or

22) oxo, or

b) a heteroaryl ring selected from the group consisting of

a 5-membered unsaturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O or S,

5 a 6-membered unsaturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O and S, and
a 9- or 10-membered unsaturated bicyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O or S;

10 wherein any stable S heteroaryl ring atom is unsubstituted or mono- or di-substituted with oxo, and any stable C or N heteroaryl ring atom is independently unsubstituted or substituted with

1) halogen,

2) NO₂,

15 3) CN,

4) CR⁴⁶=C(R⁴⁷R⁴⁸)₂,

5) C≡CR⁴⁶,

6) (CRⁱR^j)_rOR⁴⁶,

7) (CRⁱR^j)_rN(R⁴⁶R⁴⁷),

20 8) (CRⁱR^j)_rC(O)R⁴⁶,

9) (CRⁱR^j)_rC(O)OR⁴⁶,

10) (CRⁱR^j)_rR⁴⁶,

11) (CRⁱR^j)_rS(O)0-2R⁶¹,

12) (CRⁱR^j)_rS(O)0-2N(R⁴⁶R⁴⁷),

25 13) OS(O)0-2R⁶¹,

14) N(R⁴⁶)C(O)R⁴⁷,

15) N(R⁴⁶)S(O)0-2R⁶¹,

16) (CRⁱR^j)_rN(R⁴⁶)R⁶¹,

17) (CRⁱR^j)_rN(R⁴⁶)R⁶¹OR⁴⁷,

30 18) (CRⁱR^j)_rN(R⁴⁶)(CR^kR^l)_sC(O)N(R⁴⁷R⁴⁸),

19) N(R⁴⁶)(CRⁱR^j)_rR⁶¹,

20) N(R⁴⁶)(CRⁱR^j)_rN(R⁴⁷R⁴⁸),

21) (CRⁱR^j)_rC(O)N(R⁴⁷R⁴⁸), or

22) oxo;

35 R², R⁸, R⁹ and R¹⁰ are independently selected from:

- 1) hydrogen,
 2) halogen,
 3) NO₂,
 4) CN,
 5) CR₄₃=C(R₄₄R₄₅),
 6) C≡CR₄₃,
 7) (CReRf)_pOR₄₃,
 8) (CReRf)_pN(R₄₃R₄₄),
 9) (CReRf)_pC(O)R₄₃,
 10) (CReRf)_pC(O)OR₄₃,
 11) (CReRf)_pR₄₃,
 12) (CReRf)_pS(O)0-2R₆₀,
 13) (CReRf)_pS(O)0-2N(R₄₃R₄₄),
 14) OS(O)0-2R₆₀,
 15) N(R₄₃)C(O)R₄₄,
 16) N(R₄₃)S(O)0-2R₆₀,
 17) (CReRf)_pN(R₄₃)R₆₀,
 18) (CReRf)_pN(R₄₃)R₆₀OR₄₄,
 19) (CReRf)_pN(R₄₃)(CRgRh)_qC(O)N(R₄₄R₄₅),
 20) N(R₄₃)(CReRf)_pR₆₀,
 21) N(R₄₃)(CReRf)_pN(R₄₄R₄₅), and
 22) (CReRf)_pC(O)N(R₄₃R₄₄),
 or R₂ and R₈ are independently as defined above, and R₉ and R₁₀, together with
 the atoms to which they are attached, form the ring



25 R¹ is selected from the group consisting of

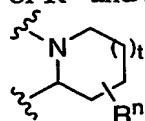
- 1) hydrogen,
 2) (CR^aR^b)_nR⁴⁰
 3) (CR^aR^b)_nOR⁴⁰,
 4) (CR^aR^b)_nN(R⁴⁰R⁴¹),
 5) (CR^aR^b)_nN(R⁴⁰)C(O)OR⁴¹,
 6) (CR^aR^b)_nN(R⁴⁰)(CR^cR^d)₂N(R⁴¹)C(O)R⁴⁹,
 7) C₃₋₈ cycloalkyl,

- 8) $(CR^aR^b)_nC(O)OR^{40}$,
 9) $(CR^aR^b)_nN(R^{40})(CR^cR^d)_{1-3}R^{41}$,
 10) $(CR^aR^b)_nS(O)0-2R^6$,
 11) $(CR^aR^b)_nS(O)0-2N(R^{40}R^{41})$,
 5 12) $(CR^aR^b)_nN(R^{40})R^6OR^{41}$,
 13) $(CR^aR^b)_nN(R^{40})(CR^cR^d)0-6C(O)N(R^{41}R^{42})$;
 or R^1 is absent when z is a double bond

R^5 is selected from the group consisting of

- 10 1) C 1-6 alkyl,
 2) =O
 3) aryl
 4) C₃₋₁₀ cycloalkyl
 5) C₁₋₆alkylene-C(O)R¹¹,
 6) C₁₋₆alkylene-C(O)R¹³
 15 7) C(O)R¹¹,
 8) C(O)R¹³,
 9) C(O)OR¹¹,
 10) C(O)OR¹³,
 11) C(O)N(R¹¹R¹¹),
 20 12) C(O)N(R¹³R¹³),
 13) C(O)N(R¹¹R¹³),
 14) CN,
 15) NHC(O)R¹¹,
 16) NHC(O)CF₃, and
 25 17) NHC(O)C₂₋₆alkyl,

or R^1 and R^5 , together with atoms to which they are attached, form



where t is 0, 1, 2, or 3, and R^n is selected from the group consisting of hydrogen, -OR_P, NR_PR_Q, C(O)NR_PR_Q, or C(O)OR_P, wherein R_P and R_Q are independently selected from the group consisting of C₁₋₆ alkyl and aryl;

R^{11} is selected from the group consisting of

- 1) aryl, and

2) an unsubstituted or substituted heterocyclic ring consisting of a 4-6 membered unsaturated or saturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting N, O and S, and a 9- or 10-membered unsaturated or saturated bicyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O or S; and

5

R₁₃ is selected from the group consisting of

- 1) C₁₋₆alkyl,
- 2) C₁₋₆alkyloxy,
- 3) C₁₋₆alkenyl,
- 4) C₁₋₆alkynyl, and
- 5) CF₃;

10

R_a, R_b, R_c, R_d, R_e, R_f, R_g, R_h, R_i, R_j, R_k, and R_l are independently selected from the group consisting of:

15

- 1) hydrogen,
- 2) C_{1-C6} alkyl,
- 3) halogen,
- 4) aryl,
- 5) R₈₀,
- 6) C_{3-C10} cycloalkyl, and
- 7) OR⁴,

20

said alkyl, aryl, and cycloalkyl being unsubstituted, monosubstituted with R₇, disubstituted with R₇ and R₁₅, trisubstituted with R₇, R₁₅ and R₁₆, or tetrasubstituted with R₇, R₁₅, R₁₆ and R₁₇;

25

R₄, R₄₀, R₄₁, R₄₂, R₄₃, R₄₄, R₄₅, R₄₆, R₄₇, R₄₈, R₄₉, R₅₁, and R₅₂ are independently selected from:

30

- 1) hydrogen,
- 2) C_{1-C6} alkyl,
- 3) C_{3-C10} cycloalkyl,
- 4) aryl,
- 5) R₈₁,
- 6) CF₃,
- 7) C_{2-C6} alkenyl, and
- 8) C_{2-C6} alkynyl,

said alkyl, aryl, and cycloalkyl is unsubstituted, mono-substituted with R¹⁸, di-substituted with R¹⁸ and R¹⁹, tri-substituted with R¹⁸, R¹⁹ and R²⁰, or tetra-substituted with R¹⁸, R¹⁹, R²⁰ and R²¹;

R⁶, R⁶⁰, R⁶¹, and R⁶³ are independently selected from:

- 5 1) C₁-C₆ alkyl,
 2) aryl,
 3) R⁸³, and
 4) C₃-C₁₀ cycloalkyl;

10 said alkyl, aryl, and cycloalkyl is unsubstituted, mono-substituted with R²⁶, di-substituted with R²⁶ and R²⁷, tri-substituted with R²⁶, R²⁷ and R²⁸, or tetra-substituted with R²⁶, R²⁷, R²⁸ and R²⁹;

15 R⁷, R¹⁵, R¹⁶, R¹⁷, R¹⁸, R¹⁹, R²⁰, R²¹, R²⁶, R²⁷, R²⁸, and R²⁹ are independently selected from:

- 20 1) C₁-C₆ alkyl,
 2) halogen,
 3) OR⁵¹,
 4) CF₃,
 5) aryl,
 6) C₃-C₁₀ cycloalkyl,
 7) R⁸⁴,
 8) S(O)₀₋₂N(R⁵¹R⁵²),
 9) C(O)OR⁵¹,
 10) C(O)R⁵¹,
 11) CN,
 25 12) C(O)N(R⁵¹R⁵²),
 13) N(R⁵¹)C(O)R⁵²,
 14) S(O)₀₋₂R⁶³,
 15) NO₂, and
 16) N(R⁵¹R⁵²);

30 R⁸⁰, R⁸¹, R⁸³ and R⁸⁴ are independently selected from a group of unsubstituted or substituted heterocyclic rings consisting of a 4-6 membered unsaturated or saturated monocyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting N, O and S, and a 9- or 10-membered unsaturated or saturated bicyclic ring with 1, 2, 3 or 4 heteroatom ring atoms selected from the group consisting of N, O or S; and

n, p, q, r, and s are independently 0, 1, 2, 3, 4, 5 or 6,
provided that, when R⁹ is hydrogen, A is substituted as defined above.

2. A compound of Claim 1, or a pharmaceutically acceptable salt thereof,

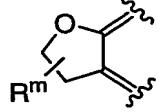
5 wherein

A is an aryl ring selected from phenyl, unsubstituted or substituted as in Claim 1, or a heteroaryl ring, unsubstituted or substituted as in Claim 1, selected from the group consisting of pyridine, pyrimidine, pyrazine, pyridazine, indole, pyrrolopyridine, benzimidazole, benzoxazole, benzothiazole, and benzoxadiazole;

10 R², R⁸, R⁹ and R¹⁰ are independently selected from the group consisting of:

- 1) hydrogen,
- 2) halogen,
- 3) OR⁴³, and
- 4) (CRERF)_pR⁴³,

15 or R² and R⁸ are independently as defined above, and R⁹ and R¹⁰, together with the atoms to which they are attached, form the ring

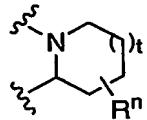


, where R^m is C₁₋₆alkyl; and

R¹ is selected from the group consisting of

- 1) hydrogen,
- 2) (CRArb)₁₋₂R⁴⁰
- 3) (CRArb)₁₋₂OR⁴⁰,
- 4) (CRArb)₁₋₂N(R⁴⁰R⁴¹),
- 5) (CRArb)₁₋₂N(R⁴⁰)C(O)OR⁴¹,
- 6) (CRArb)₁₋₂N(R⁴⁰)(CRCRd)₂N(R⁴¹)C(O)R⁴⁹,
- 7) (CRArb)₁₋₂C(O)OR⁴⁰,
- 8) (CRArb)₁₋₂N(R⁴⁰)(CRCRd)₁₋₃R⁴¹, and
- 9) cyclopropyl,

or R¹ and R⁵, together with atoms to which they are attached, form

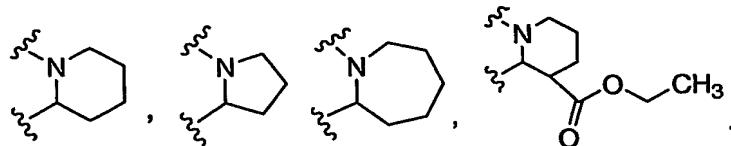


where t is 0, 1, 2, or 3, and R^n is selected from the group consisting of hydrogen, -OR_P, NR_PR_Q, C(O)NR_PR_Q, or C(O)OR_P, wherein R_P and R_Q are independently selected from the group consisting of C₁₋₆ alkyl and aryl.

5 3. A compound of Claim 2, or a pharmaceutically acceptable salt thereof, wherein R₂, R₈, R₉, and R₁₀ are independently selected from the group consisting of hydrogen and -OR⁴³.

10 4. A compound of Claim 3, or a pharmaceutically acceptable salt thereof, wherein A is selected from the group consisting of A is phenyl, fluorophenyl and chlorophenyl.

15 5. A compound of Claim 4, or a pharmaceutically acceptable salt thereof, wherein R¹ is selected from the group consisting of C₁₋₆alkyl and C₃₋₁₀ cycloalkyl, or R¹ is absent when z is a double bond; R⁵ is selected from the group consisting of C₁₋₆ alkyl, =O, aryl, and C₃₋₁₀ cycloalkyl; or R¹ and R⁵ together with the atoms to which they are attached, form



20 6. A compound of Claim 5, or a pharmaceutically acceptable salt thereof, selected from the group consisting of

25 5-(3-fluorophenyl)-3-methoxy-5,5a,6,7,8,9-hexahydro-11H-pyrido[2,1-b]quinazolin-11-one, (5,6-cis)-5-(3-fluorophenyl)-3-methoxy-11-oxo-5,6,7,8,9,11-hexahydro-5aH-pyrido-[2,1-b]quinazoline-6-carboxylate, ethyl (5,6-cis)-11-oxo-5-phenyl-5,6,7,8,9,11-hexahydro-5aH-pyrido[2,1-b]quinazoline-6-carboxylate,

- 7-methoxy-2,3-dimethyl-1-phenyl-2,3-dihydroquinazolin-4(1H)-one,
6-methoxy-4-phenyl-2,3,3a,4-tetrahydropyrrolo[2,1-b]quinazolin-9(1H)-one,
5 3-methoxy-5-phenyl-5a,6,7,8,9-hexahydro-11H-pyrido[2,1-b]quinazolin-11-one,
3-methoxy-5-phenyl-5a,6,7,8,9,10-hexahydroazepino[2,1-b]quinazolin-12(5H)-one,
7-methoxy-2-methyl-4-oxo-1-phenyl-1,4-dihydroquinazolin-1-i um chloride,
10 2-tert-butyl-7-methoxy-1-phenylquinazolin-4(1H)-one,
2-cyclohexyl-7-methoxy-1-phenylquinazolin-4(1H)-one, and
15 3-cyclopropyl-7-methoxy-1-phenylquinazoline-2,4(1H,3H)-dione.

20 7. A method of treating a condition in a mammal, the treatment of which
is effected or facilitated by Kv1.5 inhibition, which comprises administering a compound of
Claim 1 in an amount that is effective at inhibiting Kv1.5.

25 8. A method of Claim 7, wherein the condition is cardiac arrhythmia.

9. A method of Claim 8, wherein the cardiac arrhythmia is atrial fibrillation.

25 10. A method of Claim 8, wherein the cardiac arrhythmia is selected from the
group consisting of atrial flutter, atrial arrhythmia and supraventricular tachycardia.

30 11. A method of preventing a condition in a mammal, the prevention of
which is effected or facilitated by Kv1.5 inhibition, which comprises administering a
compound of Claim 1 in an amount that is effective at inhibiting Kv1.5.

35 12. A method of Claim 11, wherein the condition is cardiac arrhythmia.

13. A method of Claim 12, wherein the cardiac arrhythmia is atrial fibrillation.

35 14. A method of Claim 12, wherein the cardiac arrhythmia is selected from the
group consisting of atrial flutter, atrial arrhythmia and supraventricular tachycardia.

15. A method of Claim 11, wherein the condition is a thromboembolic event.

16. A method of Claim 15, wherein the thromboembolic event is a stroke.

5 17. A method of Claim 11, wherein the condition is congestive heart failure.

10 18. A pharmaceutical formulation comprising a pharmaceutically acceptable carrier and the compound Claim 1 or a pharmaceutically acceptable crystal form or hydrate thereof.

15 19. A pharmaceutical composition made by combining the compound of Claim 1 and a pharmaceutically acceptable carrier.

20 20. A method of treating cardiac arrhythmia comprising administering a compound of Claim 1 with a compound selected from one of the classes of compounds consisting of antiarrhythmic agents having Kv1.5 blocking activities, ACE inhibitors, angiotensin II antagonists, cardiac glycosides, L-type calcium channel blockers, T-type calcium channel blockers, selective and nonselective beta blockers, endothelin antagonists, thrombin inhibitors, aspirin, nonselective NSAIDs, warfarin, factor Xa inhibitors, low molecular weight heparin, unfractionated heparin, clopidogrel, ticlopidine, IIb/IIIa receptor antagonists, 5HT receptor antagonists, integrin receptor antagonists, thromboxane receptor antagonists, TAFI inhibitors and P2T receptor antagonists.

25 21. A method for inducing a condition of normal sinus rhythm in a patient having atrial fibrillation, which comprises treating the patient with a compound of Claim 1.

22. A method for treating tachycardia in a patient which comprises treating the patient with an antitachycardia device in combination with a compound of Claim 1.